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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,648	08/14/2001	Tim Wilkinson	TRAS-520	2841

20350 7590 06/27/2006

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EXAMINER	
HSU, JONI	

ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/931,648	WILKINSON ET AL.	
	Examiner	Art Unit	
	Joni Hsu	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-7 are directed to a program, which is nonstatutory subject matter. Claims to computer-related inventions that are clearly nonstatutory include abstract ideas which constitute "descriptive material." "Functional descriptive material" consists of computer programs which impart functionality when employed as a computer component. "Descriptive material" is nonstatutory when claimed as descriptive material per se (*Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759). Merely claiming functional descriptive material without structurally and functionally interrelating it to a computer-readable medium does not make it statutory (see MPEP 2106 IV B1). Claims 1-7 merely claim a program and do not structurally and functionally interrelate the program to a computer-readable medium, and therefore Claims 1-7 are directed to non-statutory subject matter. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized (See MPEP 2106 IV B1). It is suggested that the Applicant amend Claim

1 to recite "A computer-readable medium having stored thereon a graphics rendering software program for..."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epard (US005241625A) in view of Weiss (US005691828A).

6. With regard to Claim 1, Epard describes a graphics rendering software program for providing instructions to one or more processors to render graphics on a display of an embedded computing device (*display driver 37 is a piece of code which is able to render certain primitive*

drawing commands onto a specific piece of display hardware, Col. 9, lines 54-57) configured for establishing a network connection (17, Figure 2B) with at least one other computing device (11; *computer platforms may be coupled in a network 17*, Col. 4, lines 43-51), comprising an application layer (31, Figure 4B; *Windows application*, Col. 9, lines 64-68); a graphics toolkit (*drawing-tool functions*, Col. 10, lines 10-12); and a graphics driver (37; Col. 9, lines 54-57), including a shape function layer (21, Figure 3A; *patterns can be used to draw shapes, most QuickDraw 21 drawing operations consist of applying a pattern to a specific graphic object*, Col. 5, lines 48-56) including a target architecture specific instruction set for setting and retrieving pixel values, respectively, into and from a framebuffer memory (*QDC 22 substitutes the address of its own routine, change the grafPort in the cache so it refers to the copy and call the original routine to perform the drawing operation on the copy*, Col. 26, lines 27-63; *QDC 22 directly manipulates the screen's 25 frame buffer memory to draw screen images*, Col. 28, lines 25-36); and a framebuffer access macro layer including a set of macros for inlining into the shape function layer (*QDC 22 gets the address of the original routine from the Macintosh trap dispatcher and substitutes the address of its own routine*, Col. 26, lines 27-63; *some Macintosh applications bypass QuickDraw 21 and directly manipulate the screen's 25 frame buffer memory*, Col. 28, lines 25-36).

However, Epard does not teach that the framebuffer memory is one-dimensional. However, Weiss discloses a shape function layer and using a one-dimensional framebuffer memory (*storing dot shape information representative of a screen function in a line-by-line arrangement*, Col. 2, lines 24-27; *line buffer*, Col. 18, lines 42-54).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the device of Epard so that the framebuffer memory is one-dimensional as suggested by Weiss. Weiss suggests that matrix or two-dimensional based methods have the disadvantages of very large storage requirements for high-quality color screens (Col. 1, lines 25-26), having a limited number of achievable tone values when the screen frequency becomes high, having non-uniformities and artifacts in the shape of the individual screen dots, unless recording resolution is very high, which results in extremely large amount of computation (Col. 1, line 54-Col. 2, line 4). Having a one-dimensional framebuffer memory overcomes these disadvantages, and has the advantages that the average rate at which the framebuffer is addressed for typical screening operation is relatively low (Col. 16, lines 29-48) and achieving a high degree of fineness while only requiring the X counter 102, the comparators 100 and the logic circuitry 104, resulting in high speed response capabilities (Col. 17, lines 53-58).

7. With regard to Claim 2, Epard describes that the shape function layer is inlined into the application layer (Col. 26, lines 27-63; Col. 28, lines 25-36).

8. With regard to Claim 3, Epard does not teach that the macros include scanline access instructions. However, Weiss discloses that the macros include scanline access instructions (Col. 2, lines 24-29). This would be obvious for the same reasons given in the rejection for Claim 1.

9. With regard to Claim 4, Epard does not teach that the scanline access instructions are formulated to use scanline cells. However, Weiss discloses that the scanline access instructions

are formulated to use scanline cells (Col. 17, lines 6-14). This would be obvious for the same reasons given in the rejection for Claim 1.

10. With regard to Claim 5, Epard does not teach that the scanline cells include a smallest addressable scanline unit holding pixel information. However, Weiss discloses that the scanline cells include a smallest addressable scanline unit holding pixel information (*storing step includes storing the dot shape information in a multiplicity of addressable units, each unit containing dot shape information relating to not more than one marking line and not more than one input density*, Col. 2, lines 30-34, *storing dot shape information essentially for a single cell, the single cell is preferably the smallest element which, when repeated, defines the screen function*, Col. 2, lines 47-51; *each pixel 34 is represented digitally by an input density level*, Col. 9, lines 34-36). This would be obvious for the same reasons given in the rejection for Claim 1.

11. With regard to Claim 6, Epard does not teach that the scanline access instructions are reformulated from known algorithms to use scanline cells. According to the disclosure of this application, reformulating from known algorithms to use scanline cells means that the 2-dimensional shape algorithms are reformulated for use in a 1-dimensional memory by an algorithm that iterates in 1-increments through the major delta coordinate depending on the slope of the line, and accumulates error terms for the dependent pixel coordinate. If the error term exceeds a certain threshold, the dependent pixel coordinate is incremented (page 13, line 20-page 1ine 5). Weiss describes that the screen is conventionally formed of a regular 2-dimensional grid of cells, and the rows of the grid may form a given angle (Col. 9, lines 41-50). At the beginning

of each scan line, the X offset value is computed, and the initial Y value is taken as the Y value for that first cell. Thereafter, the X counter and the Y register are updated along the scan line at every cell boundary intersected by the scan line. The contents of the X counter are continuously compared with the constant cell width value W. When the count exceeds the value W, a next Y value is computed and retained (Col. 14, line 56-Col. 15, line 5). Therefore, Weiss discloses that the scanline access instructions are reformulated from known algorithms to use scanline cells. This would be obvious for the same reasons given in the rejection for Claim 1.

12. With regard to Claim 7, Claim 7 is similar in scope to Claim 5, and therefore is rejected under the same rationale.

13. With regard to Claim 8, Epard describes a method for rendering graphics on a display of an embedded computing device (Col. 9, lines 54-57) configured for establishing a network connection (17, Figure 2B) with at least one other computing device (11, Col. 4, lines 43-51), comprising the steps of setting and retrieving pixel values, respectively, into and from framebuffer memory of a shape function layer of a graphics rendering software running on the embedded computing device; and inlining macros into the shape function layer (Col. 26, lines 27-63; Col. 28, lines 25-36).

However, Epard does not teach that the framebuffer memory is one-dimensional. However, Weiss discloses using a one-dimensional framebuffer memory (Col. 2, lines 24-27; Col. 18, lines 42-54). This would be obvious for the same reasons given in the rejection for Claim 1.

14. With regard to Claims 9-14, these claims are similar in scope to Claims 2-7, and therefore are rejected under the same rationale.

15. With regard to Claim 15, Epard describes a graphics driver (27, Figure 4B) of a graphics rendering software program for providing instructions to one or more processors to render graphics on a display of an embedded computing device (Col. 9, lines 54-57) configured for establishing a network connection (17, Figure 2B) with at least one other computing device (11; Col. 4, lines 43-51), comprising a shape function layer (55, Figure 5A; Col. 5, lines 48-56) including a target architecture specific instruction set for setting and retrieving pixel values, respectively, into and from a framebuffer memory; and a framebuffer access macro layer including a set of macros for inlining into the shape function layer (Col. 26, lines 27-63; Col. 28, lines 25-36).

However, Epard does not teach that the framebuffer memory is one-dimensional. However, Weiss discloses using a one-dimensional framebuffer memory (Col. 2, lines 24-27; Col. 18, lines 42-54). This would be obvious for the same reasons given in the rejection for Claim 1.

16. With regard to Claims 16-21, these claims are similar in scope to Claims 2-7, and therefore are rejected under the same rationale.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joni Hsu whose telephone number is 571-272-7785. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JH

ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER